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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,376	04/17/2002	Carl J. Radens	BUR920010105	5971

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EXAMINER
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LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 04/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant No.

10/063,376

Applicant(s)

RADENS ET AL.

Examiner

Steven Loke

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 15-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 15-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. Applicant's election with traverse of Species (4): Figures 5 and 5A in Paper No. 4 is acknowledged.

2. Claims 3, 8 and 11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification (paragraph [0027]) discloses the areas of the well not covered by the gate may be implanted to N+ and the area under the gate comprises N level only. The specification never discloses the doped region is more highly doped directly beneath the edge perimeter than elsewhere beneath the first conductor as claimed in claim 3.

The specification never discloses each finger of the first plurality of fingers has essentially a same width in a second direction that is essentially perpendicular to the first direction as claimed in claim 8.

The specification never discloses the second width of the second finger is unequal to the first width of the first finger as claimed in claim 11.

3. Claims 1-11 and 15-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 6, 7, claim 15, lines 5-6, the phrase "edges portions" is unclear. It is believed that the phrase is being referred to "edge portions" of an intersection perimeter.

Claim 1, lines 9-11, the phrase "the current path created by a voltage that is not less than the minimum voltage is more likely to traverse the insulator layer essentially at the intersection perimeter than elsewhere" is unclear whether the current path would or would not traverse the insulator layer essentially at the intersection perimeter than elsewhere. The phrase "is more likely to" should be change to "would".

Claim 17, lines 1-3, the phrase "doping the second conductor to form a doped region in the first conductor, wherein the doped region is more highly doped directly beneath the edge perimeter than elsewhere beneath the first conductor" is unclear. Claim 15, the parent claim of claim 17, discloses the first conductor is positioned above the second conductor. Therefore, it is unclear how doping the second conductor to form a doped region in the first conductor. It is believed that doping the first conductor to form a doped region in the second conductor and the doped region is more highly doped in the second conductor than elsewhere beneath the first conductor.

Claim 18, lines 3-5, the phrase "the current path created by the programming voltage is more likely to traverse the dielectric layer essentially at the intersection perimeter than elsewhere" is unclear whether the current path created by the programming voltage would or would not traverse the dielectric layer essentially at the intersection perimeter than elsewhere. The phrase "is more likely to" should be change to "would".

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by

Art Unit: 2811

the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by Bertin et al.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In regards to claim 15, Bertin et al. inherently disclose a method for increasing statistical programming of an antifuse (col. 7, line 54 to col. 8, line 1), comprising: inherently forming a first conductor [220a] and a second conductor [204] separated by a dielectric layer (a dielectric layer similar to [216] of fig. 2A), wherein the first conductor [220a] (a conductor similar to [220] of fig. 2 but having a plurality of fingers) is positioned above the second conductor [204], wherein the first conductor [220a] has an intersection perimeter that comprises edge portions of the first conductor [220a] wherein the edge portions of the first conductor are positioned directly above the second conductor [204], wherein a minimum voltage between the first and second conductors is required to create a current path between the first and second conductors through the dielectric layer (col. 7, lines 39-53); and increasing the length of the intersection perimeter (the intersection perimeters at the high field merge locations [218a-p] of fig. 2B).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertin et al.

In regards to claim 16, Bertin et al. further disclose the fingers of each pair adjacent fingers of the plurality of fingers of the first conductor are separated by a gap.

Bertin differs from the claimed invention by not showing the step of increasing the length of the intersection perimeter comprises the step of forming a plurality of fingers in said first conductor by patterning and etching. It would have been obvious for the step of increasing the length of the intersection perimeter comprises the step of forming a plurality of fingers in said first conductor by patterning and etching because it depends on how the first conductor is initially formed.

In regards to claim 20, Bertin et al. inherently disclose the step of forming a plurality of fingers comprises forming a first plurality of fingers integrally with the first conductor [220a], wherein the fingers of each pair adjacent fingers of the first plurality of fingers are separated by a gap, wherein the fingers of the first plurality of fingers are each oriented in a first direction, and wherein the intersection perimeter comprises line segments coinciding with edge portions of the first plurality of fingers, and wherein the line segments are each oriented in essentially the first direction.

8. Claim 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

9. Claim 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The first major difference in the claims not found in the prior art of record is an antifuse having a current path created by a voltage that is not less than a minimum voltage would traverse the insulator layer essentially at the intersection perimeter than elsewhere. The second major difference in the claims not found in the prior art of record is the step of forming a plurality of fingers further comprises forming a second plurality of fingers integrally with the second conductor, and the fingers of the second plurality of fingers are each oriented in a second direction which perpendicular to the first direction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (703) 308-4920. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers

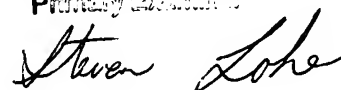
Art Unit: 2811

for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

sl  
April 20, 2003

Steven Loko  
Primary Examiner

A handwritten signature in black ink, appearing to read "Steven Loko", written in a cursive style.